The addition of ACB and IPACK to PAI enhances postoperative pain control in TKA: a randomized controlled trial.

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Introduction

The management of postoperative pain in total knee arthroplasty (TKA) patients remains both challenging and crucial to this procedure’s success. With the rapid rise of ambulatory joint replacement surgeries, enhanced recovery after surgery (ERAS), and “fast-track” programs, many centers are seeking optimal analgesic pathways to ensure timely discharge and prevent unanticipated admissions for pain control. Although periarticular injections (PAI) have gained widespread popularity, their ability to provide adequate pain control remains limited. Motor sparing peripheral nerve blocks such as the adductor canal block (ACB) and interspace between the popliteal artery and capsule of the posterior knee (IPACK) block are being considered as value added procedures, but supporting literature remains rare. The authors hypothesized that these augmentative motor-sparing blocks can significantly lower pain on ambulation in the early postoperative period compared to the use of PAI alone, thus facilitating rehabilitation. If this hypothesis could be proven correct, these interventions could improve existing “ERAS” or “fast-track” multimodal pathway in patients undergoing TKA.

Materials and methods

In this IRB-approved (2016-0168) double-blinded randomized controlled trial, eighty-six patients undergoing TKA gave informed written consent and were randomly assigned to receive either (1) a PAI (control, n=43), or (2) an IPACK with an ACB and “modified” PAI injection (intervention, n=43). The primary outcome was pain on ambulation on postoperative day 1. Secondary outcomes included NRS pain scores, pain outcomes, and opioid consumption.

Results/Case report

On POD 1, intervention group reported lower numeric rating scale (NRS) pain scores on ambulation, than control group(1.7 versus 5, p <0.001). The difference in pain scores on ambulation was also found to be significant on POD 0 (1.7 versus 5.2, p < 0.001), and POD 2 (4.5 versus 5.5, P = 0.025). Intervention group also reported significantly lower pain scores after physical therapy (PT) on POD 0 and 1 (1.9 and 1.4, p < 0.001). According to the PainOUT questionnaire, patients who received the intervention group were overwhelmingly more satisfied, had significantly less pain, less interference from pain when walking, slept better, were in severe pain less often in a 24 hour period (2.6% versus 16.5%, POD 1) and did not want to receive more pain treatments than offered. The intervention group had less opioid consumption(PACU, P = 0.002), less intravenous opioids (P < 0.001), and less intravenous patient controlled analgesia PCA (P = 0.017). There was no difference in hospital length of stay, however, more patients in the IPACK group were discharged on POD 0 (5%) and POD 1 (19%) than the PAI alone group (none on POD 0 and 16% on POD 1).

Discussion

By adding the IPACK block and the ACB to the PAI, patients received significantly better pain control on postoperative days 0, 1 and 2. There was also significantly less opioid consumption in the PACU. This study strongly supports addition of IPACK block and ACB to a multimodal analgesic pathway.

Disclosures

I declare that there are no conflicts of interest or support that may cause bias in my presentation.